REMARKS

Claims 1-19 are all the claims presently pending in the application. Claims 1-8 have been amended to more particularly define the claimed invention. Claims 9-20 have been added to claim additional features of the claimed invention.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1-8 stand rejected under 35 U.S.C. § 102(b) as allegedly unpatentable over Shiozaki et al. (JP 2003-007298). Claims 1-8 stand rejected under 35 U.S.C. § 102(b) as allegedly unpatentable over Iwakoshi et al. (JP 08-213015).

These rejections are respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

An exemplary aspect of the claimed invention (e.g., as defined by claim 1) is directed to a nonaqueous electrolyte battery including a positive electrode, a negative electrode, and a nonaqueous electrolyte. The nonaqueous electrolyte includes a cyclic carbonate having a carbon-carbon π bond in an amount which is not greater than 20% by weight of said nonaqueous electrolyte, and the positive electrode includes a positive active material including a composite oxide represented by a composite formula: $Li_xMn_aNi_bCo_cO_2$ (wherein $0 \leq x \leq 1.1$, $a+b+c=1$, $|a-b|<0.05$, $0<c<1$) and having an α-$NaFeO_2$-type crystal structure.

In conventional batteries, a nonaqueous solvent may decompose at the negative electrode, causing gas to be generated which causes the battery to swell (Application at page 4, lines 5-10).

The claimed invention, on the other hand, includes a nonaqueous electrolyte including a cyclic carbonate having a carbon-carbon π bond in an amount which is not greater than 20% by weight of said nonaqueous electrolyte, and a positive electrode having a positive active material including a composite oxide represented by a composite formula: $Li_xMn_aNi_bCo_cO_2$ (wherein $0 \leq x \leq 1.1$, $a+b+c=1$, $|a-b|<0.05$, $0<c<1$) and having an α-$NaFeO_2$-type crystal

structure (Application at page 12, lines 6-17; page 5, line 10-page 6, line 21). This may help to restrain swelling and improve battery performance.

II. THE ALLEGED PRIOR ART REFERENCES

A. Shiozaki

The Examiner alleges that Shiozaki teaches the invention of claims 1-8. Applicant would submit, however, that there are features of the claimed invention that are not taught or suggested by Shiozaki.

However, Shiozaki does not teach or suggest " *wherein the nonaqueous electrolyte comprises a cyclic carbonate having a carbon-carbon π bond* ***in an amount which is not greater than 20% by weight of said nonaqueous electrolyte,*** *and wherein the positive electrode comprises a positive active material comprising a composite oxide represented by a composite formula:* $Li_xMn_aNi_bCo_cO_2$ *(wherein* $0 \leq x \leq 1.1$, $a+b+c=1$, $|a-b| < 0.05$, $0 < c < 1$*) and having an* α*-*$NaFeO_2$*-type crystal structure*", as recited in claim 1 and similarly recited in claim 2 (Application at page 12, lines 6-17; page 5, line 10-page 6, line 21). As noted above, this may help to restrain swelling and improve battery performance.

Clearly this feature is not taught or suggested by Shiozaki.

Indeed, for example, when the battery as described in Shiozaki is compared with an exemplary aspect of the claimed invention (e.g., Battery 1 described in the Application at page 55), the former is different from the latter in that the nonaqueous electrolyte does not contain vinylene carbonate (VC).

In Shiozaki, there is not any Example on a battery using a nonaqueous electrolyte containing "a cyclic carbonate having a carbon carbon π bond" such as vinylene carbonate (VC) nor the specific description corresponding to the Example, at all.

Shiozaki describes in paragraph [0031] thereof, as solvents capable of being used in the nonaqueous electrolyte, "cyclic carbonic acid esters, such as propylene carbonate, ethylene carbonate, butylene carbonate, chloroethylene carbonate, vinylene carbonate, and the like". That is, in Shiozaki, VC is placed on the same level with the other solvents such as propylene carbonate (PC), ethylene carbonate (EC), butylene carbonate (BC) and chloroethylene carbonate (CEC). Incidentally, none of PC, EC, BC and CEC are a "cyclic carbonate having a carbon-carbon π bond".

Thus, nowhere does Shiozaki teach or suggest the claimed invention which is an invention of selection which is characterized in that the "cyclic carbonate having a carbon-carbon π bond" such as VC is selectively used **in an amount which is not greater than 20% by weight of the nonaqueous electrolyte** as a material of the nonaqueous electrolyte.

Therefore, Applicant would submit that there are features of the claimed invention that are not taught or suggested by Shiozaki. Therefore, the Examiner is respectfully requested to withdraw this rejection.

B. Iwakoshi

The Examiner alleges that Iwakoshi teaches the invention of claims 1-8. Applicant would submit, however, that there are features of the claimed invention that are not taught or suggested by Iwakoshi.

However, like Shiozaki, Iwakoshi does not teach or suggest " *wherein the nonaqueous electrolyte comprises a cyclic carbonate having a carbon-carbon π bond* ***in an amount which is not greater than 20% by weight of said nonaqueous electrolyte,*** *and wherein the positive electrode comprises a positive active material comprising a composite oxide represented by a composite formula: $Li_xMn_aNi_bCo_cO_2$ (wherein $0 \leq x \leq 1.1$, $a+b+c=1$, $|a-b|<0.05$, $0<c<1$) and having an α-$NaFeO_2$-type crystal structure*", as recited in claim 1 and similarly recited in claim 2 (Application at page 12, lines 6-17; page 5, line 10-page 6, line 21). As noted above, this may help to restrain swelling and improve battery performance.

Clearly this feature is not taught or suggested by Iwakoshi. Indeed, Applicant would point out that Iwakoshi clearly does not teach or suggest the nonaqueous electrolyte (or the positive active material) of the claimed invention.

Although "Example 3" as described in paragraph [0031] of Iwakoshi may use the positive active material represented by $Li_xMn_aNi_bCo_cO_2$, the positive active material $LiMn_{0.1}Ni_{0.7}Co_{0.2}O_2$ known from the description in paragraph [0031] is one having a |a-b| value of 0.6. Therefore, the positive active material in Iwakoshi is clearly different from the composite formula as recited in an exemplary aspect of the claimed invention (e.g., claim 1), and the positive active material of Iwakoshi is far removed from the claim scope of the claimed invention in which the |a-b| value is less than 0.05.

Further, in Iwakoshi, there is not any Example on a battery using a nonaqueous electrolyte containing "a cyclic carbonate having a carbon-carbon a π bond" such as vinylene carbonate (VC) nor the specific description corresponding to the Example, at all.

Iwakoshi describes in paragraph [0020] thereof, "[a]s a nonaqueous solvent of nonaqueous electrolyte, for example, propylene carbonate, ethylene carbonate, butylene carbonate, vinylene carbonate, γ-butyrolactone, a sulfolane, 1,2-dimethoxyethane, 1,2-diethoxy ethane, 2-methyl tetrahydrofuran, 3-methyl-l,3-dioxolane, methyl propionate, methyl butyrate, dimethyl carbonate, diethyl carbonate, dipropyl carbonate, etc. can be used.

In particular, it is desirable to use cyclic carbonates, such as propylene carbonate, ethylene carbonate, butylene carbonate, vinylene carbonate, etc. or chain-like carbonates, such as dimethyl carbonate, diethyl carbonate, dipropyl carbonate, etc., in view of the stability to an electrical potential." That is, in Iwakoshi, VC is placed on the same level with the other solvents such as propylene carbonate (PC), ethylene carbonate (EC) and butylene carbonate (BC). Incidentally, none of PC, EC and BC are a "cyclic carbonate having a carbon-carbon a π bond".

Therefore, Iwakoshi clearly does not teach or suggest the claimed invention which is an invention of selection which is characterized in that the "cyclic carbonate having a carbon-carbon π bond" such as VC is selectively used as a material in the nonaqueous electrolyte **in an amount which is not greater than 20% by weight of the nonaqueous electrolyte**, and the positive active material having the specific composition range is combined therewith.

Therefore, Applicant would submit that there are features of the claimed invention that are not taught or suggested by Iwakoshi. Therefore, the Examiner is respectfully requested to withdraw this rejection.

III. FORMAL MATTERS AND CONCLUSION

The Abstract has been amended to address the Examiner's concerns stated on page 2 of the Office Action.

In view of the foregoing, Applicant submits that claims 1-19, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 6/13/07

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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that the foregoing was filed by facsimile with the United States Patent and Trademark Office, Examiner Shermanda L. Williams, Group Art Unit # 1745 at fax number (571) 273-8300 this 13th day of June, 2007.

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